

<p align="center">LLNL Environmental Restoration Division Standard Operating Procedure</p>	<p align="center">TITLE: General Instructions for Field Personnel</p>
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<p>APPROVAL _____ Date _____</p> <p>Division Leader</p> <p>CONCURRENCE _____ Date _____</p> <p>QA Implementation Coordinator</p>	<p align="center">PROCEDURE NUMBER: ERD SOP-4.1</p> <p align="center">REVISION: 2</p> <p align="center">EFFECTIVE DATE: December 1, 1995</p> <p align="center">Page 1 of 10</p>

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1.0 PURPOSE

To provide general instructions to all Livermore Site and Site 300 personnel concerning activities required to be performed before, during, and after field investigations. These instructions are to ensure that field personnel understand the site, the objective and schedule of the field program, their authority, and their responsibilities.

2.0 APPLICABILITY

These instructions apply to all field personnel who conduct work at Site 300 and the Livermore Site for the Environmental Restoration Division.

3.0 REFERENCES

- 3.1 Site 300 Site Safety Plan (SSP).
- 3.2 Site Safety Plan for Lawrence Livermore National Laboratory Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Investigations.

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3.3 Operational Safety Procedures (OSPs).

3.4 LLNL Health & Safety Manual.

4.0 DEFINITIONS

4.1 Personnel Protective Equipment (PPE)

Equipment to protect the body against contact with known or anticipated toxic chemicals. PPE has been divided into four categories (A, B, C, and D) according to the degree of protection needed, Level A being the highest degree of protection.

5.0 RESPONSIBILITIES

5.1 Division Leader

The Division Leader's responsibility is to ensure that all activities performed by ERD at the Livermore Site and Site 300 are performed safely and comply with all pertinent regulations and procedures, and provide the necessary equipment and resources to accomplish the tasks described in this procedure.

5.2 Environmental Chemistry and Biology Group Leader (ECBGL) or Task Leader

The ECBGL or Task Leader with the LLNL Hazards Control Department will designate the appropriate level of PPE for the field personnel to safely accomplish their work.

5.3 Field Personnel

Field personnel are responsible for the safe completion of assigned tasks as described in the ERD SOPs, Site Safety Plans, OSPs, Quality Assurance Project Plans (QAPPs), and appropriate LLNL Health & Safety Manual procedures. They are required to document the work performed and to alert their immediate supervisors of any variances from procedures established in the above documents.

6.0 PROCEDURE

6.1 Site 300 and Livermore Site Background Description

- 6.1.1 Site 300 is operated by LLNL as a high-explosive test facility and was placed on the National Priorities List on August 30, 1990, with guidance and oversight of the cleanup transferring to CERCLA regulations. As such, strict procedures are in place to ensure the safety of all personnel working at or around Site 300. Field work should not commence if there are any doubts about Site 300 access or safety procedures.
- 6.1.2 The LLNL Livermore Site was established in 1952 to conduct nuclear weapon and other research. Five areas have been identified as CERCLA hazardous waste sites and are combined as a single operable unit for CERCLA compliance.

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- 6.1.3 In addition to CERCLA activities, both sites perform environmental activities that are conducted to comply with Resource Conservation and Recovery Act (RCRA), State regulations, and DOE orders.

6.2 Office Preparation (Both Sites)

- 6.2.1 Obtain all information and supplies pertinent to field investigation or activity for which the field personnel are to be responsible. This may include, but is not limited to:

- A. Previous reports related to the site and area.
- B. Associated QAPP, OSPs, SSP, and SOPs.
- C. Site and Area maps.
- D. Access arrangements.
- E. Field forms and equipment checklists (Attachment A).
- F. Radio and Radio identification name from the Sampling Coordinator (SC), if applicable.
- G. Appropriate field attire according to Personal Protective Equipment (PPE) list (Attachment B).
- H. Scope of work or work/sampling plan

- 1. Livermore Ground Water Monitoring

The SC will provide assigned sampling locations, requested analyses and associated technical data daily, prior to each sampling event.

- 2. Livermore Site Treatment Facilities

The sampling locations and frequency of sampling are specified in the Remedial Design Reports and the facility operating procedure. For other specialized sampling events, the Task Leader or Experimenters will provide the necessary information (i.e., location, time, analysis, experimental protocol, etc.).

- 3. Site 300 Ground Water Monitoring

A Routine Ground Water Sampling Schedule is provided by the SC on a quarterly basis which lists the area and well to be sampled, the requested analysis, the laboratory the sample is to be sent to, as well as other pertinent sampling information. Technical information used for sampling is contained in the Well Specification Table and is provided by the SC. The SC also generates and distributes field sheets for water level monitoring on a monthly basis. Study area leaders or group leaders supply sampling plans for non-routine sampling events.

- 4. Site 300 Treatment Facilities

The work performed at these facilities is governed by NPDES permits, substantive requirements and /or Monitoring and Reporting requirements and is directed by the facility Task Leader.

- 5. Drilling

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The Drilling Coordinator (DC) will supply the field personnel with the drilling work/sampling plan.

- 6.2.2 Arrange for necessary vehicles and gather materials and equipment needed to conduct field work (see Attachment A for equipment checklist). The Livermore Ground Water Monitoring SC will provide the daily sampling plan called the Daily Operation Guide (D.O.G.) which also contains a list of equipment needed for sampling.
- 6.2.3 Coordinate schedules and activities with field and building coordinators in areas where the work is to be performed. Updated lists of the building coordinators and their areas of authority can be found in the LLNL Telephone Directory. Site 300 personnel need to consult the shot schedule when planning activities in the East/West Firing Area. The SC or DC will provide samplers with an administrative escort (usually the field support person) when wells are in limited access areas.
- 6.2.4 All personnel who anticipate working at Site 300 and Livermore Site must meet the following mandatory training requirements:
 - A. Complete a 40-hour or 24-hour SARA/OSHA training course and any annual reviews as necessary, as applicable.
 - B. Meet the attendance requirements for HS-0095, "Safety for Employees and Visitors at Site 300" within a 30-day period from beginning of field work (Site 300 only).

6.3 Field Preparation

- 6.3.1 Check the condition and operation of all supplies and equipment on site.
- 6.3.2 Check with SC for sampling assignment and associated field support coordination (Livermore Ground Water Monitoring only).
- 6.3.3 Inform Control Point Operator (CPO) of radio identification name (Site 300 only).

6.4 Operation

6.4.1 Radio or Cellular Phone Operation

A. Site 300

A radio or cellular phone are to be used to contact security for off-road activities and other access approvals. Request permission from the CPO to go more than 25 ft off of pavement. Request permission for off-road travel during normal working hours by contacting the CPO (dial 3-5270) or calling by radio on the Crafts Channel (call sign "SIERRA 45"), or by personally visiting the Control Point. You must also notify the CPO when you return to the paved road. Occasionally the CP is not manned. In those instances, contact Safeguards & Security on your radio (call sign "Mike") or contact by phone at 3-5222. Safeguards & Security will contact the facility supervisor nearest to you and ask permission for you to leave the paved road.

B. Livermore Site

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At the Livermore Site, Ground Water Monitoring field personnel must use a hand held radio to contact both the field support technician and the SC for assistance and guidance, as well as a safety measure in case of accidents.

6.4.2 Site Access

A. Site 300

Periodically, portions of Site 300 are closed to access due to the preparation of high-explosive materials and their use in various experiments. The HS-95 course provides instructions concerning entry into restricted areas. If a restricted area is encountered during the course of the field work, entry is allowed only after certain procedures have been followed and appropriate authorizations have been obtained. It is forbidden to go around a closed gate. This could result in physical injury.

B. Livermore Site Access

Construction projects etc., periodically impede access to sampling sites, in these instances, the SC should be notified immediately so that instructions for sampling a back up location may be relayed.

6.4.3 Field Personnel Duties

The general duties of field personnel are specific to the particular activity and may include providing technical direction of the field work, logging samples, taking field measurements, etc. If approved by the appropriate group leader or project manager, the field personnel may designate sampling or borehole locations, depth and completion zones, sample type and depths. Field personnel may also approve procedures, materials, and ensure that all activities conducted are in compliance with the QAPP, associated SOPs, and applicable health and safety requirements.

6.4.4 Nonconformances/Modifications

If violations to procedures, QAPP, associated SOPs, and applicable health and safety requirements are observed, the field personnel should stop the work and notify their direct supervisor and/or the Site Health and Safety Coordinator. A Quality Improvement Form (QIF) shall be submitted via mail to the ERD QA Implementation Coordinator (QAIC). The instructions for filing a QIF are included on the form. The QAIC should be called if there are any questions. Modifications to the work plans that may be required must be approved by the appropriate Group or Task Leader. Work not defined in site-specific sampling plans is not to be initiated without approval of the appropriate SC, Task Leader, or Group Leader.

6.4.5 Documentation

Record all field sampling/drilling activities in the appropriate logbook designated for the specific work project. Entries in monitor well logbooks must be made when a well is entered for any reason. Field personnel should also note all conversations, instructions or information received relevant to the project (see SOP 4.2, "Sample Control and Documentation"). Complete all field forms in accordance with applicable SOPs as work progresses.

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6.4.6 Personal protective equipment (PPE)

Certain work conditions, such as sampling contaminated environmental media, may require various levels of PPE depending on the potential hazard to workers. Attachment B displays appropriate PPE for various levels of protection. Generally, field work at Site 300 and the Livermore Site only require PPE levels of C & D. Field personnel should contact the ECBGL or appropriate Task Leader before starting any new field work or if uncertain about the level of PPE necessary to safely conduct field work. The LLNL Hazards Control Department makes the final determination of the appropriate level of PPE. Do not conduct any field work and notify the Task Leader or ECBGL if the original level of PPE is believed to be insufficient.

6.4.7 Monitoring

Visually monitor working environment continually to ensure safety of personnel. Instrumentation should be used when specified by the Task Leader. Equipment should also be monitored for contamination and decontaminated when necessary per SOPs 4.5 and 4.9. All observations which can affect sample quality should be recorded in appropriate logbooks and/or field sheets.

6.5 Post Operation

- 6.5.1 Telephone or report daily to the SC, DC or immediate supervisor, and provide a progress report when necessary.
- 6.5.2 Ensure that all equipment and samples are accounted for and ready for transport.
- 6.5.3 Record any work left undone, such as site restoration, sampling, etc.
- 6.5.4 Ensure proper disposition of waste generated during site activities and record cleanup procedures.
- 6.5.5 Verify completion of all field and data forms. Submit the field copy of all forms to the SC or DC for verification and distribution.

7.0 QA RECORDS

- 7.1 Field sheets, logbooks, and other forms generated during the field activities documenting those activities.

8.0 ATTACHMENTS

Attachment A—Equipment Check List

Attachment B—Personnel Protective Equipment List

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Attachment A

Equipment Checklist

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EQUIPMENT CHECK LIST

The purpose of the list presented below is to aid field personnel in identifying those supplies necessary to conduct a particular field operation. It is not intended to be all inclusive. It is the responsibility of field personnel to determine and obtain the supplies required for successful performance of assigned tasks.

- _____ Air tight plastic bags
- _____ Any necessary packaging (i.e., bubble wrap)
- _____ Any necessary protective equipment required by Hazards Control Department
- _____ Appropriate CoC forms and release numbers
- _____ Appropriate field sheets
- _____ Appropriate sample containers (see SOP 4.3)
- _____ Appropriate shipping forms
- _____ Appropriate SSP
- _____ Barricades
- _____ Blue ice or double bagged ice
- _____ Calculator
- _____ Camera (authorized personnel only)
- _____ Caution tape
- _____ Clipboard
- _____ Cold weather gear
- _____ Coolers
- _____ Distilled (organic-free) water
- _____ Drinking water
- _____ Duct tape
- _____ Ear plugs
- _____ Field forms
- _____ First aid kit
- _____ Flagging
- _____ Hand lens
- _____ Hard hat
- _____ Hat
- _____ Health and Safety Plan
- _____ Lath/stakes
- _____ Overshoes
- _____ Organic Vapor Analyzer (OVA) and/or photoionization detector (PID)
- _____ Pens, pencils, permanent markers
- _____ Preprinted labels
- _____ Protractor
- _____ QAPPs
- _____ Radio
- _____ Rain suit (if necessary)
- _____ Safety shoes/boots
- _____ Sample preservative
- _____ Sampling, field, or facility logbook
- _____ Sampling Plan
- _____ Snake guards
- _____ SOPs
- _____ Sample preservative
- _____ Stop watch
- _____ Tape measure (tenths)
- _____ Tool box
- _____ Well Specification Table
- _____ Work gloves

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Attachment B

Personnel Protective Equipment

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Personnel Protective Equipment^b

Level A	Level A Protection
Should be worn when the highest level of respiratory, skin, and eye protection is needed.	Supplied-air respirator (MSHA/NIOSH approved) Fully encapsulating chemical-resistant suit Coveralls (optional) Long cotton underwear (optional) Gloves (inner and outer), chemical resistant Boots, chemical resistant Hard Hat (optional) Disposable gloves and boot covers (optional) Cooling unit (optional) Two-Way radio communications (optional)
Level B	Level B Protection
Should be worn when the highest level of respiratory protection is needed, but a lesser level of skin protection.	Supplied-air respirator (MSHA/NIOSH approved) Self-contained breathing apparatus Chemical resistant clothing Long cotton underwear (optional) Coveralls (optional) Gloves (inner and outer), chemical-resistant Boots (outer), chemical-resistant, steel toe and shank Boot covers (outer), chemical resistant Hard hat (face shield) (optional) Two-Way radio communications (optional)
Level C	Level C Protection
Should be worn when the criteria for using air-purifying respirators are met.	Air-purifying respirator, full-face, canister equipped (MSHA/NIOSH approved) Chemical-resistant clothing Coveralls (optional) Long cotton underwear (optional) Boots (outer), chemical resistant, steel toe and shank Boot covers (outer) (optional) Hard hat (face shield) (optional) Escape mask (optional) Two-Way radio communication (optional)
Level D	Level D Protection
Should be worn only as a work uniform and not on any site with respiratory or skin hazards. It provides no protection against chemical hazards.	Coveralls Gloves (optional) Boots/shoes, leather or chemical-resistant Safety glasses/chemical splash goggles (optional) Hard hat (face shield)

^b Hazards Control along with ERD personnel will decide which level of personnel protective equipment (PPE) to use for the safety of field personnel.